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(71) Applicant (for all designated States except US): VNS  
PORTFOLIO LLC [US/US]; 20400 Stevens Creek  
Blvd., Fifth Floor, Cupertino, CA 95014 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): MILLER, Dennis,  
Ray [US/US]; 1773 W. Goldfinch Way, Chandler, AZ  
85248 (US). RAHMAN, Md, Hafijur [BD/US]; 3111 S.  
Lois Ln., Gilbert, AZ 85296 (US). KABIR, Mohammad,  
Ehsanul [BD/CA]; 102-210 Woodridge Cres., Nepean,  
Ontario, K2B 8E9 (CA).(74) Agent: HENNEMAN, Larry, E., Jr.; Henneman & As-  
sociates, PLC, 714 W. Michigan Ave., Three Rivers, MI  
49093 (US).(81) Designated States (unless otherwise indicated, for every  
kind of national protection available): AE, AG, AL, AM,  
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NE, SN, TD, TG).

[Continued on next page]

(54) Title: CMOS SRAM/ROM UNIFIED BIT CELL

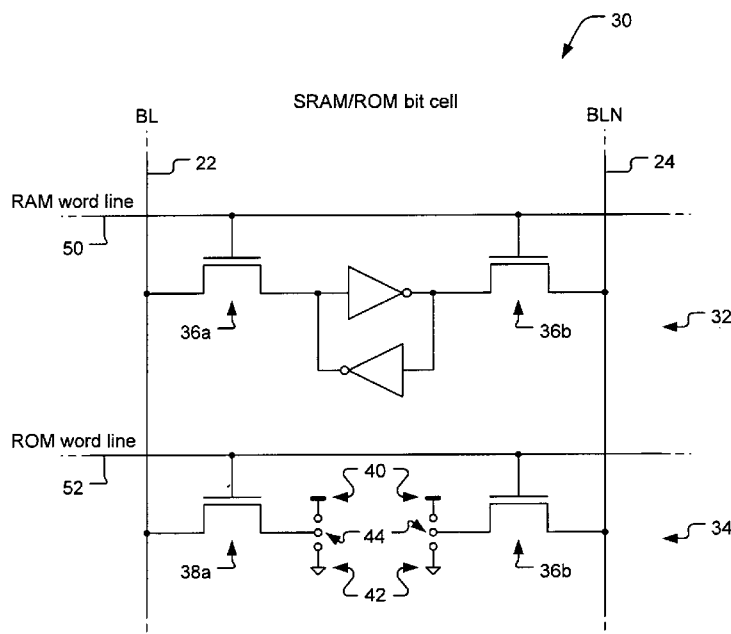


FIG. 2

(57) Abstract: A memory cell (30) including a bit (BL) and bitnot (BLN) sense lines, and a random access memory (RAM) word line (50) and a read only memory (ROM) word line (52). The memory cell includes a static RAM (SRAM) bit cell (32) and a ROM bit cell. The SRAM bit cell is coupled between the bit and bitnot sense lines, and is responsive to a signal on the RAM word line. The ROM bit cell is also coupled between the bit and bitnot sense lines, and is responsive to a signal on the ROM word line. The ROM bit cell includes first (38a) and second (38b) ROM pass transistors, a first node for permanently programming connection of the first ROM pass transistor to either a voltage line or a ground line, and a second node (44) for permanently programming connection of the second ROM pass transistor to either the voltage line or the ground line.



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see Notice of 12 March 2009

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 08/00260

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - G11C 11/00 (2009.01)

USPC - 365/156

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

USPC 365/156

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched  
USPC 365/129, 156, 189.2 (text search--see below)

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

PubWest (PGPB,USPT,EPAB,JPAB); Google Scholar

Search terms: SRAM, ROM, memory, cell, transistor, CMOS, nMOS, pMOS, 6T, well, adjacent, program, add, strap, metal, layer, via, plug, differential

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 6,128,218 A (YOU et al.) 03 October 2000 (03.10.2000), FIGs. 1, 3, 4, col. 1, ln 27-40; col. 3, ln 44-62; col. 4, ln 32-57	1-10
Y	US 5,455,788 A (CLARK) 03 October 1995 (03.10.1995), FIG. 1, col. 1, ln 13-39	1-10
Y	US 2006/0028853 A1 (OSADA et al.) 09 February 2006 (09.02.2006), FIGs. 1, 3, 8, 9, para [0033]-[0034], [0044], [0050]	4-6
Y	US 6,222,216 B1 (RAO et al.) 24 April 2001 (24.04.2001), FIGs. 3-5, col. 8, ln 55-67; col. 9, ln 1-8; col. 10, ln 1-67	7-10

☐ Further documents are listed in the continuation of Box C. ☐

\* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

20 May 2009 (20.05.2009)

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**27 MAY 2009**

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Mail Stop PCT, Attn: ISA/US, Commissioner for Patents  
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Authorized officer:

Lee W. Young

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# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 08/00260

## Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:  
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. ☒ Claims Nos.: 11-15  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying additional fees, this Authority did not invite payment of additional fees.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

### Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- ☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- ☐ No protest accompanied the payment of additional search fees.